US Army Corps of Engineers®
Engineer Research and Development Center

Electronic Charting for Navigation

Technology

The U.S. inland navigation system consists of 8,200 miles of rivers maintained by the Corps of Engineers in 22 states, and includes 276 lock chambers with a total lift of 6,100 feet. The highly adaptable and effective system of barge navigation moves over 625 million tons of commodities annually, which includes coal, petroleum products, various other raw materials, food and farm products, chemicals, and manufactured goods. Following recommendations by the National Transportation Safety Board, the National Academy of Science and the American Waterways Operators, Congress directed the Corps of Engineers to develop and publish electronic charts for the inland waterways. Development of Inland Electronic Navigation Charts (IENCs) to cover the Mississippi River and tributaries thus began in 2001 with pilot projects on the Atchafalaya River in Louisiana and Lower Mississippi River near Vicksburg, Mississippi. These projects, which involved a combination of in-house and contract activities, were the first efforts to collect and convert inland waterway data, commonly used for river and channel maintenance, into the international S-57 hydrographic data exchange. This highly structured data format is commonly used for electronic chart applications and will be used for Corps IENCs.

Problem

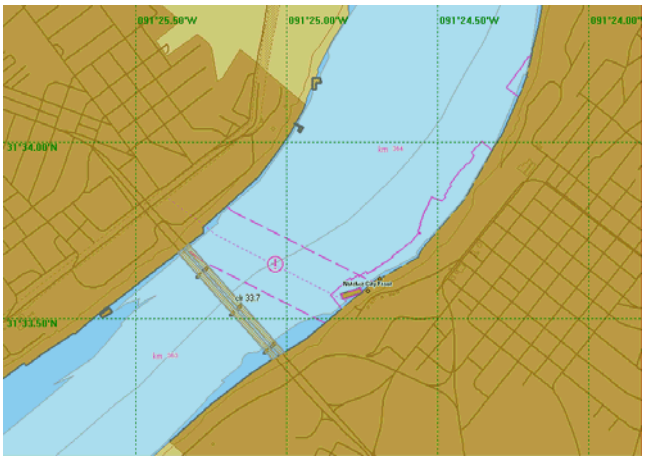
Give a short description of the challenge or problem users might have to overcome that this technology will resolve. Again, 1-2 brief paragraphs should suffice.

Expected Cost To Implement

What costs will the user incur to implement this technology? These could include hardware, software licenses, training, support contracts. You won't necessarily provide specific amounts because those will typically vary according to the customer's baseline--but you need to at least list the requirements they need to know about along with ballpark estimates if you have them. If there are specific platform requirements, it would be appropriate to repeat them here even though you included them in the Technology section.

Benefits/Savings

Large-scale, accurate, and up-to-date IENCs, such as those being developed, enable electronic chart systems that provide accurate and real-time display of vessel position relative to waterway features, voyage planning and monitoring, training tools for new personnel and integrated display of river charts, radar, and Automatic Identification Systems.



Status

IENCs are available for download from the Corps E-Charting web site (*www.tec.army.mil/echarts*), and cover the Lower Mississippi River, Mile 220 AHP to 601; Upper Mississippi River, Mile 301 to 524; Ohio River, Miles 0 to 981, Black Warrior, Tombigbee, Alabama Rivers, Atchafalaya River (update of pilot

IENC), and Red River. Additional waterways will be charted and published as the program continues, and existing IENCs will include additional features and more accurate data from new waterway surveys or other sources. As further internal Corps of Engineers production capability is developed, ongoing updates will be published as new data is available from channel construction and maintenance.

ERDC POC

U.S. Army Engineer Research and Development Center, Topographic Engineering Center (TEC), ATTN: CEERD-TR-A, 7701 Telegraph Road, Alexandria, VA 22315-3864; Internet e-mail: Rebecca.Ragon@erdc.usace.army.mil

Distribution Sources

The S-57 data files can be downloaded from the Electronic Charting for Navigation web site, www.tec.army.mil/echarts.

Available Documentation

List, with direct links if available, any technical manuals, specifications, users manuals, on-line tutorials, etc. Technical reports or other documents describing product background or research activities should not be cited here, just the 'how to' documentation.

Available Training

Tell the reader what kind, who provides it, the cost (repeat from 'Cost to Implement' section is ok). Give a direct link to sources if you can; e.g., direct to the PROSPECT course description.

Available Support

If support is available, e.g., through a support center or commercial vendor, give the specifics.